

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. – 171. (Cancelled)

172. (Previously presented) A fluidic sample analysis cartridge for analyzing a particle-containing liquid sample, comprising:

a sample inlet comprising an inlet shut-off interface;

a convoluted sample storage channel in fluidic connection with said sample inlet, wherein said storage channel comprises a plurality of particle capture regions;

a resuspension pump interface in fluidic connection with said storage channel and positioned downstream of said sample inlet;

a first analysis channel in fluidic connection with said storage channel, said first analysis channel comprising a first analysis region; and

a first analysis valve interface positioned between said storage channel and said first analysis channel.

173. (Previously presented) The cartridge of claim 172 wherein said storage channel is formed by a first sheet attached to a second sheet having a cutout region attached to a third sheet attached to the second sheet.

174. (Previously presented) The cartridge of claim 172 wherein said storage channel is a spatially periodic channel.

175. (Previously presented) The cartridge of claim 174 wherein said storage channel is an isotropic spatially periodic channel.

176. (Previously presented) The cartridge of claim 174 wherein the width of said storage channel is between about 25 and 2,000  $\mu\text{m}$ .

177. (Previously presented) The cartridge of claim 176 wherein the depth of said storage channel is less than about 300  $\mu\text{m}$ .

178. (Cancelled)

179. (Previously presented) The cartridge of claim 172 wherein said resuspension pump interface is positioned between said sample inlet and said storage channel.

180. (Previously presented) The cartridge of claim 172 wherein said resuspension pump interface is positioned along said storage channel.

181. (Previously presented) The cartridge of claim 172 wherein said resuspension pump interface is a syringe pump interface.

182. (Previously presented) The cartridge of claim 172 wherein said inlet shut-off interface comprises a septum.

183. (Previously presented) The cartridge of claim 172 wherein said inlet shut-off interface comprises a valve interface.

184. (Previously presented) The cartridge of claim 172 wherein said first analysis valve interface comprises a pinch valve interface.

185. (Previously presented) The cartridge of claim 172 wherein said first analysis region comprises an electrical analysis region.

186. (Previously presented) The cartridge of claim 185 wherein said electrical analysis region comprises an electrical interconnect.

187. (Previously presented) The cartridge of claim 172 wherein said first analysis region comprises an optical analysis region.

188. (Previously presented) The cartridge of claim 187 wherein said optical analysis region comprises a window.

189. (Previously presented) The cartridge of claim 187 further comprising a sheath flow assembly in fluidic connection with said first analysis channel upstream of said first analysis region.

190. (Previously presented) The cartridge of claim 189 wherein said sheath flow assembly comprises a first and a second sheath fluid channel positioned on either side of, and converging with, said first analysis channel.

191. (Previously presented) The cartridge of claim 190 wherein the width of said first analysis channel does not contract within said sheath flow assembly.

192. (Previously presented) The cartridge of claim 190 wherein said sheath flow assembly further comprises an upper and a lower sheath fluid chamber positioned above and below, and converging with, said first analysis channel.

193. (Previously presented) The cartridge of claim 192 wherein said sheath flow assembly provides hydrodynamic focusing in both the widthwise and depthwise directions.

194. (Previously presented) The cartridge of claim 190 wherein said first analysis channel contracts in the widthwise and/or depthwise direction after converging with said first and second sheath flow channels.

195. (Previously presented) The cartridge of claim 172 further comprising a reagent inlet in fluid communication with said first analysis channel between said storage channel and said first analysis region.

196. (Previously presented) The cartridge of claim 195 wherein said reagent inlet comprises a syringe pump interface.

197. (Previously presented) The cartridge of claim 195 further comprising a reagent storage reservoir in fluid communication with said reagent inlet.

198. (Previously presented) The cartridge of claim 195 further comprising a mixing channel between said reagent inlet and said first analysis region.

199. (Previously presented) The cartridge of claim 198 wherein said mixing channel is a spatially periodic channel.

200. (Previously presented) The cartridge of claim 199 wherein said mixing channel is an isotropic spatially periodic channel.

201. (Previously presented) The cartridge of claim 172 wherein said first analysis channel further comprises a second analysis region, in series with said first analysis region.

202. (Previously presented) The cartridge of claim 172 further comprising a second analysis channel, having a second analysis region, in parallel with said first analysis channel.

203. (Previously presented) The cartridge of claim 202 wherein said first sample analysis region comprises a filling status gauge.

204. (Previously presented) The cartridge of claim 172 further comprising a waste storage container in fluidic connection with said first analysis channel.

205. (Previously presented) The cartridge of claim 204 wherein said waste storage container comprises a waste storage channel.

206. (Previously presented) The cartridge of claim 204 wherein said waste storage container comprises an expandable compartment.

207. (Previously presented) The cartridge of claim 172 further comprising a vent in gaseous communication with said first analysis channel.

208. (Previously presented) The cartridge of claim 207 wherein said vent is a gas-permeable plug, said plug having reduced permeability when in contact with a liquid.

209. (Previously presented) The cartridge of claim 172 for use with a measurement apparatus, further comprising alignment markings for positioning said cartridge within said measurement apparatus.

210. (Previously presented) The cartridge of claim 172 wherein said cartridge is made of three or more laminated sheets.

211. (Previously presented) The cartridge of claim 210 wherein said laminated sheets are made of plastic.

212. (Previously presented) The cartridge of claim 210 wherein said sheets are bonded together by adhesive substantially covering the abutting surfaces thereof.

213-220. (Cancelled)